CLAIMS

WE CLAIM AS OUR INVENTION:

1. A system for imaging a rotating turbine blade comprising:

an image projector receiving a moving image of the rotating blade and projecting a movement-compensated image;

an image receptor receiving the movement-compensated image;

a sensor generating information indicative of a velocity of the rotating turbine blade; and

a processor generating a drive signal responsive to the information for controlling a position of the image projector to receive the moving image at a desired angular position and to project the movement-compensated image so that the movement-compensated image appears stationary relative to the image receptor.

2. The system of claim 1, further comprising a sensor generating information indicative of a position of the rotating turbine blade.

3. The system of claim 2, further comprising a processor generating a shutter signal responsive to the information for activating the image receptor to acquire the movement-compensated image corresponding to a desired position of the blade.

4. The system of claim 1, wherein the image projector comprises:

a mirror; and

a positioner moving the mirror.

5. The system of claim 4, wherein the positioner comprises a reciprocal driver to move the mirror about an axis.

6. The system of claim 4, wherein the positioner comprises a rotational driver to rotate the mirror about a rotational axis.

7. The system of claim 1, wherein the sensor comprises a magnetic reluctance sensor.

8. A method of imaging a rotating turbine blade comprising:

positioning an image projector to receive a moving image of the rotating blade and to project a movement-compensated image;

receiving the movement-compensated image at an image receptor;

sensing a velocity of the rotating turbine blade;

controlling a position of the image projector to project the movement-compensated image so that the movement-compensated image appears stationary relative to the image receptor.

9. The method of claim 8, further comprising sensing a position of the rotating turbine blade.

10. The method of claim 9, further comprising triggering the image receptor to acquire the movement-compensated image when the blade is positioned at a desired angular position.

11. The method of claim 8, further comprising maintaining an angle of incidence of the image with respect to the image projector so that the movement-compensated image is projected to a desired area on the image receptor.

12. The method of claim 8, further comprising disposing the image projector radially outward of the rotating turbine blade.

13. The method of claim 12 further comprising disposing the image projector along a line of view parallel with an axis of the rotation of the turbine blade.

14. The method of claim 8, wherein sensing the velocity further comprises disposing a magnetic reluctance sensor radially outward of a turbine blade rotation path to generate a proximity signal indicative of the velocity and the angular position of the blade.

15. The method of claim 8, further comprising controlling a movement of the movement-compensated image relative to the velocity so that the movement allows an image of a different rotating blade to be projected to the image receptor.

16. The method of claim 15, furthering comprising moving the movement-compensated image at a rate sufficiently slow to allow the image to appear stationary on the image receptor using a sufficiently fast image acquisition speed.